From:	Berg, Marlene
To:	Tzhone, Stephen; Poore, Christine; Anderson, RobinM; Bartenfelder, David
Cc:	Sanchez, Carlos; Meyer, John
Subject:	RE: Arkwood summary for HQ; conclusion/positions concurrence requested
Date:	Monday, June 15, 2015 11:46:14 AM

Steve,
Thank you very much for this write-up, which is very well written.
I just had one comment and one question.

W/r to "current national dioxin PRGs are based on non-cancer." There are 2 national, or default, soil dioxin PRGs for industrial land use. One is based on non-cancer, with an HI of 1.0, of 730 ppt TEQ, and the other is based on cancer, with a risk of 1×10^{-6}, of 22 ppt TEQ. A PRG, or a soil screening level, is selected using the more stringent of the cancer or the non-cancer level. A risk management decision may be made to select the less stringent level, in this case, the non-cancer PRG, ensuring that this level is within the acceptable cancer risk range.

And, one question.
I am not familiar with "significance is defined by being more than an order of magnitude". Instead of the difference between 16,750 ppt TEQ remaining under the soil cover and the proposed cleanup level for a maintenance worker of 12,100 ppt TEQ, should it be said that remaining soils will not present significant risk due to ICs put into place?

Marlene

From: Tzhone, Stephen
Sent: Friday, June 12, 2015 10:59 AM
To: Poore, Christine; Berg, Marlene; Anderson, RobinM
Cc: Sanchez, Carlos; Meyer, John
Subject: Arkwood summary for HQ; conclusion/positions concurrence requested

Hi Christine, Marlene, Robin,

I've been asked to summarize the R6 position on Arkwood and to obtain your concurrence as OSRTI representatives. Currently, we are in a dioxin re-evaluation for this former 18-acre wood treater. The 1990 ROD implemented an industrial soil remediation goal for dioxin at 20,000 ppt TEQs, via excavation, incineration, and 6" cover.

As part of the dioxin re-evaluation, we wanted to answer this main question:

Main Question: Are the remaining site soils with dioxin principal threat wastes?

Current R6 conclusion: No, the remaining site soils with dioxin are not principal threat waste. Rationale: The 1991 principal threat waste guidance defines PTWs as "those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur". Thus, our

conclusion was based on:

1) Are the remaining soils with dioxin (up to 16,750 ppt TEQs max underneath the cover) highly toxic?

Current R6 position: No, remaining soils with dioxin up to 16,750 ppt TEQs max are not highly toxic. Rationale: The 1991 PTW guidance calls for using 10-3 as a treatment marker. Using the current Tier 3 RSL value (based on Cal EPA) of 22 ppt TEQs = 10-6, we equated that to 22,000 ppt TEQs = 10-3. Since the remaining site soil levels with dioxin are under 10-3, it would not be PTW based on the 10-3 marker. We do note that although the 1991 guidance did not mention the use of hazard quotients or recommend treatment markers based on hazard quotients, consideration on the subject would be helpful in a future update to the guidance due to the existence of the Tier 1 value for non-cancer and that current national dioxin PRGs are based on non-cancer.

2) Are the remaining soils with dioxin highly mobile?

Current R6 position: No, the remaining soils with dioxin at the site are not highly mobile. Rationale: Dioxin readily binds to soil and has very low water solubility. At the site, the remaining soils with dioxin up to 16,750 ppt TEQs max are underneath the 6" cover, as required by the 1990 ROD remedy. As an extra precaution, we are checking for dioxin colloidal transport in gw.

3) Can remaining soils with dioxin be reliably contained?

Current R6 position: Yes, remaining soils with dioxin can be reliably contained. Rationale: We utilized incremental sampling and sampled the cover, along with other areas that are uncovered. For the cover, the validated PRP incremental sample (for all sampling units) is 610 ppt TEQs max. The EPA co-located lab replicate (done on two of the sampling units) is 288 ppt TEQs and 333 ppt TEQs. Thus, sampling evidence shows that the integrity of the cover has not been compromised since the original remedy was implemented over two decades ago.

4) Would the remaining soils with dioxin present a significant risk to human health or the environment should exposure occur?

Current R6 position: Since the completion of the 1990 ROD remedy, industrial worker exposure has not occurred and is not occurring. Thus, we have answers for two exposure scenarios:

For the actual past, current, and likely future maintenance worker exposure: No, the remaining soils with dioxin would not present a significant risk should exposure occur. Rationale: The maintenance worker exposure is set at 12,100 ppt TEQs. If remedy components were intact, there would be no exposure. If remedy components were not intact, the maintenance worker can potentially be exposed to remaining soils with dioxin up

to 16,750 ppt TEQs max underneath the cover. The risk difference between 12,100 ppt TEQs and 16,750 ppt TEQs is not significant (if significance is defined by being more than an order of magnitude).

For a theoretical future industrial worker exposure: Yes, the remaining soils with dioxin could present a significant risk if exposure occurs. Rationale: The industrial worker exposure is set at 730 ppt TEQs. If remedy components were intact, there would be no exposure. If remedy components were not intact, the industrial worker can potentially be exposed to the remaining soils with dioxin up to 16,750 ppt TEQs max underneath the cover. The risk difference between 730 ppt TEQs and 16,750 ppt TEQs could be considered significant (if significance is defined by being more than an order of magnitude); however, sample results show that all remedy components remain in place and intact, including ICs to ensure exposure is controlled.

Please respond with any comments and your concurrence status on our conclusion/positions. Attached fyi for reference: draft regulator soil and gw comments, CSM figures, and PRP sampling reports.

Thanks,

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